RAW SEQUENCE LISTING PATENT APPLICATION US/08/737,319

DATE: 07/30/98 TIME: 15:36:29

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This Raw Listing contains the General Information Section and up to the first 5 pages.

1		SEQUENCE LISTING
2 3	(1) G	eneral Information: ENTERED
4	(1)	
5	(i)	APPLICANT: KAJIWARA, Susumu
6		MISAWA, Norihiko
7		KONDO, Keiji
8		
9	(ii)	TITLE OF INVENTION: A DNA CHAIN USEFUL FOR INCREASING
10		PRODUCTION OF CAROTENOIDS
11	,,,,,	NUMBER OF GEOVERNMEN. O
12 13	(111)	NUMBER OF SEQUENCES: 8
14	(137)	CORRESPONDENCE ADDRESS:
15	(14)	(A) ADDRESSEE: FOLEY & LARDNER
16		(B) STREET: 3000 K Street, N.W.
17		(C) CITY: Washington
18		(D) STATE: D.C.
19		(E) COUNTRY: U.S.A.
20		(F) ZIP: 20007-5109
21		
22	(V)	COMPUTER READABLE FORM:
23		(A) MEDIUM TYPE: Floppy disk
24		(B) COMPUTER: IBM PC compatible
25 26		(C) OPERATING SYSTEM: PC-DOS/MS-DOS (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
26 27		(D) SOFTWARE: Patentin Release #1.0, Version #1.30
28	(vi)	CURRENT APPLICATION DATA:
29	(+1)	(A) APPLICATION NUMBER: US 08/737,319
30		(B) FILING DATE: 12-NOV-1996
31		(C) CLASSIFICATION:
32		
33	(Vii)	PRIOR APPLICATION DATA:
34		(A) APPLICATION NUMBER: PCT/JP96/00574
35		(B) FILING DATE: 08-MAR-1996
36	4445	DDTOD ADDITON DAMA
37	(V11)	PRIOR APPLICATION DATA:
38 39		(A) APPLICATION NUMBER: JP 51234/1995
40		(B) FILING DATE: 10-MAR-1995
41	(viii)	ATTORNEY/AGENT INFORMATION:
42	(*****)	(A) NAME: Bent, Stephen A.
43		(B) REGISTRATION NUMBER: 29,768
44		(C) REFERENCE/DOCKET NUMBER: 081356/0111
45		
46	(ix)	TELECOMMUNICATION INFORMATION:

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47			()	A) TI												
48		(A) TELEPHONE: (202) 672-5300 (B) TELEFAX: (202) 672-5399														
49		(2) IDDDENN: (202) 012-3377														
50																
	(2)	TME	ODMAG	DTON	EOD	CEO	TD 1	10.1								
51	(2)	2) INFORMATION FOR SEQ ID NO:1:														
52		(i) SPAUPHAR CUARAGREDISTICS.														
53		(i) SEQUENCE CHARACTERISTICS:														
54		(A) LENGTH: 251 amino acids														
5 5		(B) TYPE: amino acid														
56		(D) TOPOLOGY: linear														
57																
58		(:														
59		(ii) MOLECULE TYPE: protein														
60		(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:														
61		١.	,	J	31.02	220				E		- •				
62	Wat	602	Wat	Dro	Acn	т1.	val	Dro	Dro	A 7 a	<i>α</i> 1	Wal.	A = ~	mb ~	61 11	a1
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64	_		_			_	_	-			-	_	_			-
65	Leu	Ser	Leu	Glu	Glu	Tyr	Asp	Glu	Glu	Gln	Val	Arg	Leu	Met	Glu	Glu
66				20					25					30		
67																
68	Arg	Cys	Ile	Leu	Val	Asn	Pro	Asp	Asp	Val	Ala	Tyr	Gly	Glu	Ala	Ser
69			35					40					45			
70																
71	Lvs	Lvs	Thr	Cvs	His	Leu	Met	Ser	Asn	Tle	Asn	Ala	Pro	I.vs	Asp	Leu
72	-1-	50		-1-			55		••••			60		-,-		
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		uis	Arg	Ala	Pne		vaı	Pne	rea	Pile	_	PIO	Ser	ASP	GTÅ	
75	65					70					75					80
76	_	_	_		_	_		_		_				_		
77	Leu	Leu	Leu	Gln	Arg	Arg	A⊥a	Asp	GIu		Ile	Thr	Phe	Pro	_	Met
78					85					90					95	
79																
80	Trp	Thr	Asn	Thr	Cys	Cys	Ser	His	Pro	Leu	Ser	Ile	Lys	Gly	Glu	Val
81				100					105					110		
82																
83	Glu	Glu	Glu	Asn	Gln	Ile	Glv	Val	Ara	Ara	Ala	Ala	Ser	Ara	Lvs	Leu
84			115				1	120	3	5			125	3	-2-	
85																
86	Glu	Wie	Gl 11	Leu	Gl v	Val	Dro	Thr	Sar	Sar	Thr	Dro	Pro	Acn	Sor	Dho
87				пеа	_									ASP	Ser	FIIC
		130					133					140				
88	_,	_	_	_,	_			_	_		_	_	_			_
89		Tyr	Leu	Thr	Arg		His	Tyr	Leu	АТа		Ser	Asp	GTÀ	Leu	-
90	145					150					155					160
91																
92	Gly	Glu	His	Glu	Ile	Asp	Tyr	Ile	Leu	Phe	Ser	Thr	Thr	Pro	Thr	Glu
93					165					170					175	
94																
95	His	Thr	Glv	Asn	Pro	Asn	Glu	Val	Ser	Asp	Thr	Ara	Tvr	Val	Thr	Lvs
96			1	180					185			3	- 1 -	190		-1-
97									_00							
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99			195					200					205			

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100																
101	Trp	Phe	Lys	Leu	Ile	Ala	Arg	Asp	Phe	Leu	Phe	Gly	Trp	Trp	Asp	Gln
102		210					215					220				
103										_			_			
104		Leu	Ala	Arg	Arg		Glu	Lys	Gly	Glu		Asp	Ala	Lys	Ser	
105	225					230					235					240
106																
107	Glu	Asp	Leu	Ser	_	Asn	Lys	Val	Trp	-	Met					•
108					245					250						
109																
110																
111	_															
112	(2)	INF	ORMAT	rion	FOR	SEQ	ID 1	VO:2	:							
113	41.															
114	(i) SEQUENCE CHARACTERISTICS:															
115	(A) LENGTH: 259 amino acids															
116								aci								
117				(D)	TOI	POLO	3Y: .	Linea	ar							
118							_									
119		(:	ii) N	MOLE	CULE	TYPI	E: pi	rote	in							
120												_				
121		(:	xi) S	SEQUI	ENCE	DESC	CRIP	CION	: SEÇ) ID	NO:	2:				
122			_	_			_	_		_			_			_
123		GIn	Leu	Leu		GIu	Asp	Arg	Thr	-	His	Met	Arg	GTÀ		Ser
124	1				5					10					15	
125	_,					3	_	-1	_	-1	_		_	_	_	~ 3
126	Thr	Trp	Ala	_	GTĀ	GIN	ser	GIN	_	GIU	Leu	мет	Leu	_	Asp	GIU
127				20					25					30		
128	_		_		_		_	_	_		_,	-1			~	
129	cys	тте	Leu	vaı	ASP	АТа	Asp	_	Asn	тте	Thr	стА		vaı	ser	Lys
130			35					40					45			
131	T	a1	a	TT-1	T	Db -	T	D	774	a 1	D	37.	a 1	T	T	***
132	Leu		Cys	птѕ	rys	Pne		Pro	птъ	GTII	Pro		сту	rea	rea	HIS
133 134		50					55					60				
134	1 ~~	. ד ג	Phe	Cor	Wal	Dho	T 011	Dho) an	N c m	01 n	C1.,	7	T 011	T 011	LOW
136	A19	нта	File	ser	vaı	70	ьeu	FILE	нар	нър	75	GLY	Arg	rea	Leu	80
137	65					70					/3					80
137	Gl n	cl n	Arg	λla	λra	Sor	Tue	Tla	Thr	Dho	Dro	Sor	Val	Ψrn	Пhr	λen
139	GIII	GIII	AIG	AIG	85	Ser	цуз	116	1111	90	FIU	261	Val	пр	95	ASII
140					0.5					90					93	
141	Thr	Cve	Cys	Sar	Hie	Dro	T.011	Hic	G1 v	Gln	Thr	Pro	Men	Glu.	Va1	Aen
142	1111	cys	Cys	100	1113	110	пеа	1113	105	GIII	1111	110	rap	110	Val	ASP
143				100					103					110		
144	Gln	T.e.11	Ser	Gln	Val	Δla	Δsn	Glv	Thr	Val	Pro	Glv	Δla	T.vs	Δla	Δla
145	GIII	Бец	115	GIII	Val	AIG	тэр	120	1111	Val	110	Gry	125	Буз	AIG	AIG
146			113					120					123			
147	ב ו ג	Tla	Arg	T.17¢	T.e.:	Glu	Hic	Glu	T.eu	ឲាស	Tla	Pro	Δla	Hi e	Gln	T.e.ii
148	ALU	130	y	~,, 5	Luu	JIU	135	514	204	-+ y		140	4.4U			
149		130					100					- + V				
150	Pro	Δla	Ser	Δla	Phe	Ara	Phe	Leu	Thr	Ara	Leu	His	Tvr	Cvs	Ala	Ala
151	145	u	~~.			150		204		9	155		- 1 -	-,5		160
152																

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153 154 155	Asp	Val	Gln	Pro	Ala 165	Ala	Thr	Gln	Ser	Ala 170	Leu	Trp	Gly	Glu	His 175	Glu
156 157 158	Met	Asp	Туr	Ile 180	Leu	Phe	Ile	Arg	Ala 185	Asn	Val	Thr	Leu	Ala 190	Pro	Asn
159 160 161	Pro	Asp	Glu 195	Val	Asp	Glu	Val	Arg 200	туr	Val	Thr	Gln	Glu 205	Glu	Leu	Arg
162 163 164	Gln	Met 210	Met	Gln	Pro	Asp	Asn 215	Gly	Leu	Gln	Trp	Ser 220	Pro	Trp	Phe	Arg
165 166 167	Ile 225	Ile	Ala	Ala	Arg	Phe 230	Leu	Glu	Arg	Trp	Trp 235	Ala	Asp	Leu	Asp	Ala 240
168 169 170	Ala	Leu	Asn	Thr	Asp 245	Lys	His	Glu	Asp	Trp 250	Gly	Thr	Val	His	His 255	Ile
171 172 173	Asn	Glu	Ala													
174 175 176	(2) INFORMATION FOR SEQ ID NO:3:															
177 178 179	7 (i) SEQUENCE CHARACTERISTICS: 8 (A) LENGTH: 288 amino acids															
	(D) TOPOLOGY: linear															
180 181 182		(:	ii) N	(D)	тон	POLOG	GY: I	linea	ar							
181		·	•	(D)) TOP	POLOC	SY:]	linea cote:	ar	Ō ID	NO:	3:				
181 182 183 184	Met 1	(2	ki) S	(D) MOLEC SEQUE) TOI CULE ENCE	POLOG TYPI DESG	SY:] E: pi CRIP!	linea cote: rion:	ar in				Val	Ser	Ser 15	туг
181 182 183 184 185 186 187	1	() Thr	ki) S Ala	(D) MOLEC SEQUE Asp	OULE ENCE Asn 5	TYPI DESC Asn	GY:] E: pr CRIPT	linea rote: rion: Met	ar in : SE(His 10	Gly	Ala			15	_
181 182 183 184 185 186 187 188 189	l Ala	Thr Lys	Ki) S Ala Leu	(D) MOLEG SEQUE Asp Val 20	O TOP CULE ENCE Asn 5	TYPI DESC Asn Asn	GY:] E: pr CRIPT Ser Gln	linearote: FION: Met Thr	ar in : SE(Pro	His 10 Glu	Gly Asp	Ala	Leu	Glu 30	15 Glu	Phe
181 182 183 184 185 186 187 188 189 190 191 192 193 194 195	l Ala Pro	Thr Lys Glu	Ala Leu Ile 35	(D) MOLEG SEQUE Asp Val 20 Ile	OULE ENCE Asn 5 Gln Pro	TYPI DESC Asn Asn Leu	GY: G E: pr CRIPT Ser Gln	rote: FION: Met Thr Gln 40	in : SEG Pro Pro 25	His 10 Glu Pro	Gly Asp Asn	Ala Ile Thr	Leu Arg 45	Glu 30 Ser	15 Glu Ser	Phe Glu
181 182 183 184 185 186 187 188 189 190 191 192 193 194 195	l Ala Pro Thr	Thr Lys Glu Ser	Ala Leu Ile 35 Asn	(D) MOLEG SEQUE Asp Val 20 Ile Asp	TOPECULE ENCE Asn 5 Gln Pro Glu	TYPI DESC Asn Asn Leu Ser	SY: 3 E: processor of the control of	rote: FION: Met Thr Gln 40	in : SE(Pro Pro 25	His 10 Glu Pro Cys	Gly Asp Asn Phe	Ala Ile Thr Ser	Leu Arg 45 Gly	Glu 30 Ser His	15 Glu Ser Asp	Phe Glu Glu
181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198	Ala Pro Thr Glu 65	Thr Lys Glu Ser 50	Ala Leu Ile 35 Asn	(D) MOLEG SEQUE Asp Val 20 Ile Asp	TOPECULE ENCE Asn 5 Gln Pro Glu Leu	TYPE DESC Asn Asn Leu Ser Met 70	GY: CRIPT Ser Gln Gly 55 Asn	rote: FION: Met Thr Gln 40 Glu Glu	in : SE(Pro Pro 25 Arg	His 10 Glu Pro Cys	Gly Asp Asn Phe Ile 75	Ala Ile Thr Ser 60 Val	Leu Arg 45 Gly Leu	Glu 30 Ser His	15 Glu Ser Asp	Phe Glu Glu Asp

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206																
206 207 208	Asn	Glu	Gln 115	Gly	Glu	Leu	Leu	Leu 120	Gln	Gln	Arg	Ala	Thr 125	Glu	Lys	Ile
209																
210 211	Thr	Phe 130	Pro	Asp	Leu	Trp	Thr 135	Asn	Thr	Cys	Cys	Ser 140	His	Pro	Leu	Cys
212		_	_		_		_	_		_	_	_	_	_		_
213		Asp	Asp	GLu	Leu	_	Leu	Lys	GTÀ	Lys		Asp	Asp	Lys	Ile	_
214	145					150					155					160
215 216	a1	3 T o	Tl.	mb =	N 1 a	3 T o	1707	3	T	T	1 ~~	mi a	a1	T 011	a1	T10
216	GIY	ATA	TTE	THE	165	АТА	vaı	Arg	гåг	170	ASP	HIS	GIU	Leu	175	тте
217					103					1/0					1/3	
219	Pro	Glu	Asp	Glu	Thr	I.vs	Thr	Ara	Glv	I.vs	Phe	His	Phe	Leu	Asn	Ara
220		014	AUP	180	••••	1 ,5	••••	9	185	2,5	1110			190		9
221																
222	Ile	His	Tvr	Met	Ala	Pro	Ser	Asn	Glu	Pro	Trp	Glv	Glu	His	Glu	Ile
223			195					200				4	205			
224																
225	Asp	Tyr	Ile	Leu	Phe	Tyr	Lys	Ile	Asn	Ala	Lys	Glu	Asn	Leu	Thr	Val
226		210				_	215				_	220				
227																
228	Asn	Pro	Asn	Val	Asn	Glu	Val	Arg	Asp	Phe	Lys	Trp	Val	Ser	Pro	Asn
229	225					230					235					240
230																
231	Asp	Leu	Lys	Thr		Phe	Ala	Asp	Pro		Tyr	Lys	Phe	Thr		Trp
232					245					250					255	
233	_,	_	_,		_		_	_	_	1	_	_	_			_
234	Phe	Lys	He		cys	GLu	Asn	Tyr		Phe	Asn	Trp	Trp	Glu	GIn	Leu
235 236				260					265					270		
236	λen	Nen	LON	Sar	al.,	Val.	alu	Acn	Acn	λra	Gl n	Tla	uic	Arg	Mot	LOU
238	нар	АЗР	275	261	GIU	Val	GIU	280	АЗР	Arg	GIII	TIE	285	Arg	мес	Leu
239			213					200					203			
240																
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242	(2)	INF	ORMA'	rion	FOR	SEQ	ID I	NO:4	;							
243																
244		(i)) SE(
245			•	•	ENGTI				-	rs						
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250 251		(11)) MOI	-ECO1	_E 1.)	re:	DNA	(ger	101111	<i>-</i>)						
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252 253		1101) FEA	י כיו ויף ג	ē •											
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258		(xi)) SEQ	QUENC	CE DE	ESCR	PTIC	ON: S	SEQ 1	D NO):4:					
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